CHAPTER 3: LOSS FREQUENCY, SEVERITY, & FORECASTING

Valid evaluations of casualty loss frequency and severity require:

- Multiple years (ideally at least 10) of loss experience.
- A database of sufficient size to allow the law of large numbers to function. Individual port operations will not normally present a large enough database to support a statistically credible analysis of casualty loss frequency or severity. However the combined exposure bases and loss experience of all American Association of Port Authorities (AAPA) members could be used to establish credible "industry benchmarks" against which individual ports could compare their performance. Exposure bases could be revenue, number of employees, payrolls, tons of cargo handled, and property values at risk. Benchmarks might be number of work accidents/100 employees, dollar ($) cost of worker accidents/100 employees, average $ cost per claim, number of injuries per ton of cargo handled, $ loss per ton of cargo handled, etc. Individual ports could compare their performance against these "industry benchmarks" and also study changes in their own statistics from year to year.

Casualty losses – particularly workers' compensation – are more readily forecast because of their higher frequency and more limited range in $ amount – which make them more predictable. Exhibits C and D (pages B--3 and B--4) contain an example of calculating historical payroll loss rates and applying their average to expected future payroll to determine expected future workers' compensation losses.

Exhibits C and E (pages B--3 and B--5) include references to "Loss Development." By way of explanation, reported casualty losses tend to grown over time due to incurred but not reported (IBNR) claims, unpredictable jury decisions and reopened workers' compensation claims. Therefore, it is necessary to inflate these claims by the appropriate, age-related "development factor" in order to derive an accurate figure for the ultimate cost of these claims.

General liability, automobile liability, and workers' compensation claims are paid out over time. Exhibit F shows the average annual rates at which these types of claims are paid.

Even on an industry wide basis, valid property loss frequency and severity are difficult, if not impossible, to predict because of the relatively few number of losses and the wide variation in the size of losses that occur. Two commonly used measures of loss potential are Maximum Possible Loss and Maximum Probable Loss. Maximum possible loss is the worst loss that could happen. Maximum probable loss is the worst loss that would probably happen. It is normally less than the maximum possible loss. However, it is based on judgment rather than precise figures. As an example, assume a port has two identical warehouses – each worth $1,000,000 – which are separated by 100 feet. The maximum probable loss from fire would be the total loss of one warehouse, or $1,000,000. The maximum possible loss from fire would be $2,000,000. However, different exposures to the same property may produce a different maximum probable loss. In a hurricane, the maximum probable loss to these warehouses would be $2,000,000.

When calculating either maximum possible or probable loss, the risk manager must make certain that all costs associated with the loss are considered. The physical damage is probably the easiest to determine, but loss of income, extra expense to maintain operations, the interdependencies of related port operations, the time required to rebuild or repair damaged facilities, availability of rental equipment, and emergency arrangements to minimize inconvenience to customers must also be included in the calculation.

Property and business income insurance may be purchased with:

- Specific limits for each separate "fire division" (separate, but adjoining structures each with its own property insurance rate)
- An overall loss limit for each loss
- A blanket limit (the sum of all specific limits) available to respond to a loss.

Specific, or separate limits require continuous monitoring and adjustment to reflect accurate values under changing conditions. If the values are understated, loss recovery will be reduced accordingly.

A loss limit somewhat in excess of the largest maximum possible loss for a multi-location organization is the most economical and prudent approach.

Utilizing a blanket limit is the most cautious and most expensive method of purchasing property and related coverages.